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AUTHOR Maltby, Gregory P.; And Others
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ABSTRACT

This report is the fifth year and last evaluation of the Title VII Bilingual Computer Literacy Project for San Elizario Independent School District, Texas. Several points in the fourth year evaluation focused on the need for the computer assisted instruction (CAI) project to obtain and maintain community and parent involvement and to secure and maintain school district staff commitment. A newsletter and survey sent to parents in May 1989 requested parent volunteers for a number of activities; this may be a start toward parent involvement in the CAI project. Although teachers and staff have shown a strong and growing commitment to the project, turnover in project personnel and funding problems threaten project status in the school district after the federal grant ends. A comparison of April 1988 and April 1989 standardized test scores for 159 students in grades 1-6 and 9-12 with national norms showed that reductions in the gap between participant scores and national norms occurred for composite scores, reading, language arts, and mathematics in grades 4, 6, and 12; and for grade 2 reading; grade 5 language arts; grade 9 language arts; grade 10 composite scores, reading, and language arts; and grade 11 composite scores, reading, and mathematics. English language proficiency improved for five grades and worsened for four grades, but gains and losses were minimal. Appendices include a letter explaining district plans for project continuation, an explanation of the gap reduction model, standardized test scores and statistics, and descriptions of oral language proficiency levels. This report contains 17 references. (SV)

FIFTH YEAR EVALUATION REPORT

FOR

The San Elizario Bilingual Learning Community: An Application of Technology to Reading/Writing/Mathematics/Computer Literacy

Submitted to:

Mr. Allen B. Boyd, Superintendent
San Elizario Independent School District
P.O. Box 920
San Elizario, Texas 79849

Submitted by:

Dr. Gregory P. Maltby
Mr. Stanley R. Lopez
Ms. Cindy Santos
Ms. Maria Telles-McGeagh

Educational and Evaluation Consultants
New Mexico State University
Box 30001, Dept. 3N
Las Cruces, New Mexico 88003-0001
(505) 646-2139

July 28, 1989

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Part 1

Introduction

This report is the fifth year and last evaluation of the Title VII Bilingual Computer Literacy Project for San Elizario Independent School District (SEISD) - Texas. Given the extensive report submitted last year (Fourth Year - August 10, 1988 - 207 pages), this report will be brief.

Essentially, this report has two additional parts. Part II will contain our analysis of the process to institutionalize the project as a fixture in the school district after five years federal funding. Part III will present the results of student progress based on pre-post test scores. Appendices will contain various material, especially tables indicating student achievement via the Gap Reduction Model. In addition, we have added the list of references found in Report #4 which also contains new entries used only in Report #5.

Part II

Institutionalization of the Project

It would be well to begin this section with some points raised in The Fourth Year Report. These points, drawn from the literature review, focus on the need for any innovative project to 1) obtain and maintain community/parent involvement, and 2) secure and maintain school district staff commitment.

Related to parent support:

> Three reports (Rutherford & Almaguer 1981, and two by New York City Board of Education, Office of Educational Assessment, both 1986) indicate the essential need for parental support and understanding in any computer assisted instruction (CAI) program. All three reports focused on Hispanics--new arrivals or otherwise. It was urged that Parent Advisory Councils (PAC) be established to reinforce and convey the importance of the students' work at home in the CAI program. (pp. 6-7)

Related to district commitment and staff attitudes:

> Three studies directly or indirectly address these two points. In summary and to no one's surprise, without strong commitment by the district personnel, administrators, teachers, and other staff, CAI will not succeed, nor would any other innovative project. In addition to general staff support, financial resources for material and specialized staff seem to be critically important (three reports by New York City Board of Education, Office of Educational Assessment, one 1985, two 1986). These reports indicate the need to train teachers through inservice workshops. The objective in all the projects reported was to improve skills in content areas and employment potential through CAI for all students enrolled in a project. These reports also urge the need for a fulltime director dedicated to the implementation of a CAI program. One other report (Education Turnkey Systems, 1985) strongly suggested that unless teachers'

> attitudes are positive toward CAI projects, students cannot be expected to be positive and their parents would reflect their children's attitudes. (p. 7)

The remainder of Part II of the report will focus on these two major points, in addition to adequate funding.

In the fourth year report (August 10, 1989) we recommended greater involvement of the Parent Advisory Council (PAC). It was noted that the membership was very small and that meetings were held infrequently. It was observed that parent participation in the educational process generally and the CAI project was at best minimal (p. 52). Given recent events--that is the lowering of San Elizario ISD accreditation by the Texas Education Agency (TEA)--it is essential that the district have greater parental awareness and involvement in many aspects of the district, as well as the CAI project. A start in this direction may be the parental survey sent out to parents in the May 1989 issue of The Mission, the district's newsletter. The newsletter and the survey asked for parent volunteers for a number of activities. This is a start.

Of greatest concern to the evaluation team on the matter of institutionalization is the commitment of the administration and staff to the CAI project. It may well be that without adequate funds from outside sources this project will fall by the wayside in the sense of the original intentions of the five year federal grant. There is, in addition, the turnover of personnel generally and

specifically with the project. For example, in the last three years leadership for the project has been in the hands of three different people. The staff committed to the elementary CAI lab has changed twice. Also, the very able staff member responsible for the project at the high school level (grades 9-12) is stepping out of that position after being with the project for four years. A proper replacement for him is of importance. Only at the 7-8 grade level is there stability in CAI and these grade levels have never been a part of the project. Without continuity of committed staff it is doubtful the project as envisioned will continue. One symptom of difficulties to come was the inability of the district to keep the project operational at the elementary level during the fall semester of 1988. It did not start up again until three staff members (a co-ordinator and two aides who were students at the University of Texas, El Paso) were hired. All three persons are most capable and did much to enhance the project, but they will leave the district before July 1, 1989. There is some question in our minds as to how these positions will be filled.

We have been, over the years of our evaluation, impressed by the growing acceptance of the faculty of this project. Teachers with little or no knowledge of CAI have become strong supporters of the project. Much of this is due to the hard work of those at all levels, especially those

working directly with students grades 1 - 12. We hope that the district will continue its commitment to CAI. Given that, we have received a letter from the Director of Curriculum of SEISD on that very point (see Appendix A). But for the district to carry out its commitments will require enough money and stable staffing that is qualified in CAI, for the project to be institutionalized.

Part III

Quantitative Aspects of the Project Evaluation

Project students' progress or lack of progress in academic subjects and language proficiency was evaluated through analysis of standardized test score results. Standardized tests used for this purpose include the Science Research Associates (SRA) Survey of Basic Skills (SBS) (SRA, Inc., 1985) and the Language Assessment Scales (LAS) (Duncan & DeAvila, 1981). Analysis and results of project students' achievement is presented below by test type utilized:

A. SRA-SBS

The SRA-SBS was utilized to evaluate student achievement in academic subjects of reading, language arts and mathematics. Composite or overall achievement across academic subjects was also evaluated. Students' test scores presented as growth scale values were reduced to means or averages by grade level and academic subject using a pretest date of April 1988 and a posttest date of April 1989. Utilizing only matched pretest and posttest scores, they were compared to national norms or standards in order to provide a comparison of the project students' achievement in relation to students across the United States.

A Gap-Reduction Model (GRM) (Appendix B) which provides evidence of whether or not project students are closing the gap between themselves and national groups was utilized.

An overview or summary of students' achievement across the subjects analyzed is presented in Table 1. Calculation results are presented in Appendix C.

Table 1
Title VII - 1989
Relative Growth Indices (RGIs)

GRADE	Composite	Reading	Language	Math
1	----	- 6%	----	----
2	----	29%	----	-102%
3	- 12%	- 41%	- 20%	- 23%
4	39%	96%	78%	12%
5	- 2%	- 59%	27%	0%
6	12%	12%	93%	7%
9	- 65%	- 67%	41%	-125%
10	21%	35%	76%	- 69%
11	50%	4%	- 26%	164%
12	160%	29%	130%	133%

Analysis and results: Table 1 presents a summary of project students' standings in relation to national comparison groups in the areas tested by the SRA-SBS (reading, language arts, and math). Composite score comparisons are also provided. Comparisons are presented as Relative Growth Indices between project students' and national groups' pretest and posttest results--whether project students

reduced or increased the gap between themselves and national groups.

Results by grade level follow:

Grade 1

a. Composite--project students increased their mean score from 75 to 168, but no national norms were available to determine comparisons.

b. Reading--project students showed a -6% Relative Growth Index, indicating that the gap between themselves and national groups increased.

c. Language Arts--no matched scores were available to conduct an analysis.

d. Math--no pretest national norms were available, however, project students raised their mean score from 121 to 176, scoring 17 points higher than the national average (159) on the posttest. Gap-reduction/increase cannot be determined.

Grade 2

a. Composite--no pretest national norms were available. Although project students increased their mean score from 126 to 151, they scored 65 points lower than the national average (216) on the posttest. A gap-reduction/increase cannot be determined.

b. Reading--project students showed a 29% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

c. Language Arts--no pretest national norms were available. Although project students increased their mean score from 108 to 139, they scored 80 points below the national average (219) on the posttest. A gap- reduction/increase cannot be determined.

d. Math--project students scored higher (184) than national groups (159) on the pretest; however, they scored 22 points lower than the national norms on the posttest, indicating a considerable lack of growth when compared to national norms (-102%).

Grade 3

a. Composite--project students showed a -12% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

b. Reading--project students showed a -41% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

c. Language Arts--project students showed a -20% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

d. Math--project students showed a -23% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

Grade 4

a. Composite--project students showed a 39% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

b. Reading--project students showed a 96% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

c. Language Arts--project students showed a 78% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

d. Math--project students showed a 12% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

Grade 5

a. Composite--project students showed a -2% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

b. Reading--project students showed a -59% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

c. Language Arts--project students showed a 27% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

d. Math--project students showed a 0% Relative Growth Index, indicating that the gap between themselves and national groups remained the same.

Grade 6

a. Composite--project students showed a 12% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

b. Reading--project students showed a 12% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

c. Language Arts--project students showed a 93% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

d. Math--project students showed a 7% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

Grade 9

a. Composite--project students showed a -65% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

b. Reading--project students showed a -67% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

c. Language Arts--project students showed a 41% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

d. Math--project students showed a -125% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

Grade 10

a. Composite--project students showed a 12% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

b. Reading--project students showed a 35% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

c. Language Arts--project students showed a 76% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

d. Math--project students showed a -69% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

Grade 11

a. Composite--project students showed a 50% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

b. Reading--project students showed a 4% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

c. Language Arts--project students showed a -26% Relative Growth Index, indicating that the gap between themselves and national groups was increased.

d. Math--project students showed a 164% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

Grade 12

The Relative Growth Index formula may show unstable results when applied to groups of less than 10 - 15 students. Grade 12 had 4 matched scores and thus the RGIs here presented may be unstable.

a. Composite--project students showed a 160% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

b. Reading--project students showed a 29% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

c. Language Arts--project students showed a 130% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

d. Math--project students showed a 133% Relative Growth Index, indicating that the gap between themselves and national groups was reduced.

B. LAS

Project students' progress in English language proficiency for school year 1988-89 was evaluated through analysis of test score results gained from the Language Assessment Scales (LAS) test (Duncan & DeAvila, 1981). LAS scores are reported as proficiency levels ranging from Level 1 (non-speaker) to Level 5 (fluent speaker), and provide a gross estimate of students' oral language proficiency (see Appendix D for a full explanation of proficiency levels).

A pretest date of Spring, 1988 and a posttest date of Spring, 1989 was established for analysis of scores which were tabulated by grade level utilizing only matched pretest and posttest individual scores to determine gain or loss in proficiency.

Table 2 presents project students' LAS English oral language proficiency results by grade level and indicates whether or not growth occurred over the two testing periods.

Table 2

LAS English Test Summary Results

(Pretest = Spring, 1988) (Posttest = Spring, 1989)
N = number of students with matched pretest and posttest scores)

Grade	N	Pretest Mean	Posttest Mean	Gain/Loss
1	2	2.0	3.0	+1.0
2	11	2.5	1.9	-0.6
3	19	2.8	2.9	+0.1
4	23	3.4	3.7	+0.3
5	14	3.5	3.6	+0.1
6	4	3.2	2.0	-1.2
9	3	2.3	1.7	-0.6
10	10	3.2	3.4	+0.2
11	2	3.0	2.5	-0.5
12	1	3.0	3.0	0

As evidenced in Table 2, five grades (1, 3, 4, 5, 10) showed an improvement in proficiency, four grades (2, 6, 9, 11) exhibited a drop, with one grade (12) remaining at the same level. Gains and losses were minimal, with only two grades (1 and 6) either increasing or decreasing a full level in proficiency.

A note of caution is required in the interpretation of test score summary results; for several grade levels (for example, grades 1, 9, 11, 12) very few matched pretest and posttest scores were available, thus these summary results

may not be completely representative of all of the project students in those grades.

For future student language proficiency evaluations, it is recommended that school district personnel utilize LAS raw scores in addition to "level" proficiency scores in order to gain a more accurate view of student achievement. Additionally, teacher observation and reporting of students' performance on classroom instructional tasks will provide a more realistic measure of students' functional proficiency in the English language.

REFERENCES

References used in Reports #4 / #5

Cardenas, Jose A. (1983). "High Technology and Equal Educational Opportunity." Parts I and II. Intercultural Development Research Association Newsletter. Feb. 1983, pp. 1-2, Aug. 1983, pp. 1-3, 6-7. (ERIC Document ED 238982).

Duncan, Sharon E. and De Avila, Edward A. (1981). Scoring and Interpretation Manual for Language Assessment Scales (LAS). San Rafael, CA: Linguametrics Group.

Education Turnkey Systems, Inc. (1985). Uses of Computers in Education. (Eric Document ED 258569).

Fernandez, Celistino. "Education." In Stoddard, E., Nostrand, R.L, and Wes, J.P. (Eds.) (1983). Borderlands Sourcebook: A Guide to the Literature on Northern Mexico and the American Southwest. Norman: University of Oklahoma Press.

New York City Board of Education, Brooklyn, N.Y. Office of Educational Evaluation (1985). John Jay High School Project TRIUNFE, 1983-84. OEA Evaluation Section Report. (ERIC Document ED 262142).

New York City Board of Education, Brooklyn. Office of Educational Assessment (1986). Project PROBE, 1984-1985. OEA Evaluation Report. (ERIC Document ED 272603).

New York City Board of Education, Brooklyn. Office of Educational Assessment (1986). Theodore Roosevelt High School: Project TEACH, 1984-1985. OEA Evaluation Report. (ERIC Document ED 272602).

New York City Board of Education, Brooklyn. Office of Educational Assessment (1986). South Bronx High School Computers in Bilingual

Education 1984-1985. OEA Evaluation Report. (ERIC Document ED 270560).

Rutherford, William B. and Almaguer, Ted. O. (1981). Evaluation of the Title VII Computer Assisted Spanish English Transition (CASETS) Project, 1980-81. (ERIC Document ED 213780).

Saracho, Olivia N. (1982). "The Effects of a Computer-Assisted Instruction Program on Basic Skills Achievement and Attitudes Toward Instruction of Spanish-speaking Migrant Children." American Educational Research Journal v. 19, n.2, Summer 1982, pp. 201-19. (ERIC Document EJ 272099).

SRA. (1985). Survey of Basic Skills. Technical Information: Test and Subtest Summary Statistics. Chicago: Science Research Associates, Inc.

Stoddard, E.R. and Hedderson, J. (1987). Trends and Patterns of Poverty Among the U.S.-Mexico Border. NM: New Mexico State University Board of Regents.

Stoddard, E.R., Nostrand, R.L., and Wes, J.P. (Eds.) (1983). Borderlands Sourcebook: A Guide to the Literature on Northern Mexico and the American Southwest. Norman: University of Oklahoma Press.

Tikunoff, William J. (1985). Applying Significant Bilingual Instructional Features in the Classroom. Rosslyn, VA: InterAmerica Research Associates, Inc.

Young, Malcom B., et al., (1986). Instructing Children with Limited English Ability: Year One Report of the National Longitudinal

Evaluation of the Effectiveness of Services for Language-Minority Limited-English-Proficient Students. Arlington, VA: Development Associates, Inc. and Research Triangle Park, NC: Research Triangle Institute.

Note: The ERIC search was conducted December, 1987 under the descriptor terms: Computer Literacy, Computer Assisted Instruction, Bilingual, English as a Second Language. There were an additional thirteen entries not cited in this report.

References used in Report #5

Tallmadge, G.K., Lam, T.C.M., and Gamel, N.N. (1987). Bilingual Education Evaluation System, User's Guide, Vol I. Mountain View, CA: RMC Research Corp.

Tallmadge, G.K., Lam, T.C.M., and Gamel, N.N. (1987). Bilingual Education Evaluation System, User's Guide, Vol. II. Technical Appendices. Mountain View, CA: RMC Research Corp.

APPENDIX A

San Elizario
Independent School District
P.O. Box 920
San Elizario, Texas 79849-920
(915) 851-2791

"ALL STUDENTS CAN LEARN"

TO: Dr. Maltby
NMSU Evaluation Team

FROM: Mr. Robert Longoria
Director of Curriculum

RE: Upcoming Committments

DATE: May 26, 1989

First of all, a note of appreciation to you and your staff for the recent input and cooperation given.

This memo shall serve as notice of upcoming committments by our district to continue total institutionalization of computers districtwide.

The following decisions have transpired in reference to continue quality computer assisted instruction districtwide with our LEP (and to include regular) student populations:

1. The services of the Title VII coordinator and both teacher aides will expire on schedule June 15 (in accordance to proposal). The district will commit to retaining the two teacher aides on a part-time/full-time basis for 1989-90 school year.

2. The district will continue curriculum writing this summer with an emphasis on including computer activities. Teachers will attend workshops (funded through Title VII and in-district) and be contracted for final product. Emphasis will be on language arts, mathematics, and computer related subjects. Present Title VII personnel (inclusive of Dr. Tinajero) will be contracted to assist as consultants for technical assistance.

3. A technology plan will be developed to insure total K-12 institutionalization. This plan will dictate a clearer sense of direction for technology implemented in the district.

4. Space will be made available at the elementary to continue with a computer learning center. Keyboarding, computer literacy, and tutorial programs will be the emphasis at the elementary. Middle school will offer mandated computer literacy classes. Additional hardware/software will be purchased to include the science department in utilizing technology.

The high school will offer computer science courses. A certified computer teacher will be sought. Data-processing will be implemented within a two year time span.

I would like to add that the monies Title VII has injected into our district has been invaluable to our LEP populations. The monies have given us a great start in institutionalizing the technology into the district. Procurement of software and hardware will continue. The district is excited about the future of technology in our district.

cc: Mr. Allen Boyd
Mrs. Barbara Fechner
Dr. Josie Tinajero

RL/ir

APPENDIX B

Appendix B

Gap Reduction Model

Following is an explanation of the Gap Reduction Model (GRM) that produces the Relative Growth Indices (RGIs), according to Tallmadge, Lam, and Gamel, in Bilingual Education Evaluation System, User's Guide, Volume 1, 1987.

> RGIs express, in percentage terms, the amount by which the progress of the project group exceeded or fell short of the progress of the comparison group.
> An RGI of 20% means that the progress of the project group was 20% larger than that of the comparison group.
> An RGI of -8% means that the progress of the project group was 8% less than the progress of the comparison group.
> You should not place too much confidence in analyses based on fewer than about 10 to 15 students, however, since the RGIs of small groups will be unstable. (p. 100)

Tallmadge et al, in Bilingual Education Evaluation System, User's Guide, Volume II, 1987, presents the calculations for the Relative Growth Index.

> The Pretest Gap is the comparison group's mean pretest score minus the project group's mean/median pretest score divided by the comparison group's pretest standard deviation.
> The Posttest Gap is the comparison goup's mean posttest score minus the project group's mean/median posttest score divided by the comparison group's posttest standard deviation.
> The Gap Reduction is the pretest gap minus the posttest.
> The Comparison Group's (standardized) Growth is the comparison group's mean posttest score minus its mean pretest score divided by the square root of the average of its pre- and posttest squared standard deviations. [In footnote at bottom of page: First square the comparison group's pretest and posttest standard deviations. Add them together and divide by two. Then, take the square root of the result.]
> The Project Group's (standardized) Growth is the comparison group's growth plus the gap reduction.

The Relative Growth Index is the project group's growth minus the comparison group's growth divided by the comparison group's growth and multiplied by 100 (to convert it to a percentage). (Appendix H, p. 4)

Calculations for the Relative Growth Index can be expressed in the following manner:

Abbreviations/symbols used represent:
Comp. = Comparison
Proj. = Project
$\bar{x}$ = mean
s.d. = standard deviation

1. Pretest Gap

$$\frac{\text{Comp. Pretest } \bar{x} - \text{Proj. Pretest } \bar{x}}{\text{Comp. Pretest s.d.}}$$

2. Posttest Gap

$$\frac{\text{Comp. Posttest } \bar{x} - \text{Proj. Posttest } \bar{x}}{\text{Comp. Posttest s.d.}}$$

3. Gap Reduction

Pretest Gap - Posttest Gap

4. Comparison Growth

$$\frac{\text{Comp. Posttest } \bar{x} - \text{Comp. Pretest } \bar{x}}{\sqrt{\frac{(\text{Comp. Pretest s.d.}) + (\text{Comp. Posttest s.d.})}{2}}}$$

5. Project Growth

Comp. Growth + Gap Reduction

6. Relative Growth Index

$$\frac{\text{Proj. Growth} - \text{Comp. Growth}}{\text{Comp. Growth}} \times 100$$

APPENDIX C

Appendix C

Grades 1 through 5

Relative Growth Index Data

Grade Level	Test Area	Pre Gap	Post Gap	Gap Red.	Comp. Growth	Proj. Growth	Rel. Gr. Ind	Proj. N
1	CS	---	---	---	---	---	---	5
	R	0.45	0.54	-0.09	1.39	1.3	- 6%	5
	L	---	---	---	---	---	---	-
	M	---	-0.49	---	---	---	---	5
2	CS	---	1.18	---	---	---	---	12
	R	1.64	1.32	0.32	1.12	1.44	29%	12
	L	---	1.36	---	---	---	---	12
	M	-0.71	0.43	-1.14	1.12	-.02	-102%	12
3	CS	1.0	1.1	-0.1	0.85	0.75	-12%	30
	R	1.19	1.4	-0.21	0.51	0.3	-41%	33
	L	1.03	1.2	-0.17	0.84	0.67	-20%	31
	M	0.49	0.69	-0.2	0.86	0.66	-23%	30
4	CS	1.2	0.94	0.26	0.66	0.92	39%	25
	R	1.46	0.92	0.54	0.56	1.1	96%	28
	L	1.42	0.96	0.46	0.59	1.05	78%	29
	M	0.71	0.63	0.08	0.65	0.73	12%	26
5	CS	1.23	1.24	-0.01	0.56	0.55	- 2%	17
	R	1.22	1.49	-0.27	0.46	0.19	-59%	17
	L	1.44	1.32	0.12	0.44	0.56	27%	17
	M	0.81	0.81	0	0.66	0.66	0%	17

Grades 6 through 12

Relative Growth Index Data

Grade Level	Test Area	Pre Gap	Post Gap	Gap Red.	Comp. Growth	Proj. Growth	Rel. Gr. Ind	Proj. N
6	CS	1.41	1.35	0.06	0.49	0.55	12%	11
	R	1.55	1.49	0.06	0.49	0.55	12%	11
	L	1.58	1.31	0.27	0.29	0.56	93%	11
	M	1.09	1.05	0.04	0.57	0.61	7%	11
9	CS	0.89	1.06	-0.17	0.26	0.09	-65%	20
	R	1.02	1.22	-0.12	0.3	0.1	-67%	20
	L	0.84	0.77	0.07	0.17	0.24	41%	20
	M	0.63	0.93	-0.3	0.24	-0.06	-125%	20
10	CS	1.13	1.08	0.05	0.24	0.29	21%	16
	R	1.05	0.96	0.09	0.26	0.35	35%	16
	L	0.97	0.84	0.13	0.17	0.3	76%	16
	M	0.88	1.06	-0.18	0.26	0.08	-69%	16
11	CS	0.56	0.46	0.1	0.2	0.3	50%	12
	R	0.67	0.66	0.01	0.27	0.28	4%	12
	L	0.31	0.37	-0.06	0.23	0.17	-26%	12
	M	0.55	0.32	0.23	0.14	0.37	164%	12
12	CS	0.9	0.74	0.16	0.1	0.26	160%	4
	R	0.95	0.90	0.05	0.17	0.22	29%	4
	L	0.85	0.72	0.13	0.1	0.23	130%	4
	M	0.72	0.56	0.16	0.12	0.28	133%	4

Grades 1 through 5

Comparison and Project Group Data

Grade Level	Test Area	Comp. pre $\bar{x}$	Comp. pre sd	Comp. post $\bar{x}$	Comp. post sd	Proj. pre $\bar{x}$	Proj. post $\bar{x}$
1	CS	---	---	---	---	75	168
	R	104	51	174	50	81	147
	L	---	---	---	---	---	---
	M	---	---	159	35	121	176
2	CS	---	---	216	55	126	151
	R	174	50	234	57	92	159
	L	---	---	219	59	108	139
	M	159	35	208	51	184	186
3	CS	216	55	265	60	161	199
	R	234	57	261	48	166	194
	L	219	59	267	55	158	201
	M	208	51	252	51	183	217
4	CS	265	60	306	65	193	245
	R	261	48	288	49	191	243
	L	267	55	299	54	189	247
	M	252	51	284	48	216	254
5	CS	306	65	346	78	226	249
	R	288	49	312	55	228	230
	L	299	54	324	59	221	246
	M	284	48	319	58	245	272

Grades 6 through 12

Comparison and Project Group Data

Grade Level	Test Area	Comp. pre $\bar{x}$	Comp. pre sd	Comp. post $\bar{x}$	Comp. post sd	Proj. pre $\bar{x}$	Proj. post $\bar{x}$
6	CS	346	78	385	81	236	276
	R	312	55	339	55	227	257
	L	324	59	341	59	231	264
	M	319	58	352	58	256	291
9	CS	444	84	466	87	369	374
	R	371	53	387	55	317	320
	L	374	56	384	60	327	338
	M	405	70	422	72	361	355
10	CS	466	87	487	87	368	393
	R	387	55	401	54	329	349
	L	384	60	394	61	326	343
	M	422	72	441	77	359	359
11	CS	487	87	505	90	438	464
	R	401	54	416	58	365	378
	L	394	61	408	62	375	385
	M	441	77	452	82	399	426
12	CS	505	90	514	93	424	445
	R	416	58	423	62	361	367
	L	408	62	414	64	355	368
	M	452	82	462	85	393	414

APPENDIX D

APPENDIX D

Description of LAS® Oral Production (Story-Retelling) Proficiency Levels

ORAL PRODUCTION LEVEL	PROFICIENCY LEVEL	DESCRIPTION
1	NON SPEAKER	At Level 1, the student produces only isolated words and expressions. While there are some differences across the age groups, they are very slight at this level of performance.
2		At Level 2, a few isolated phrases and fragmented or very simple sentences are produced. Sentences are usually incoherent and may be difficult to associate with the storyline.
3	LIMITED SPEAKER	At Level 3, complete sentences are produced, often with systematic errors in syntax. Sentences are longer and more coherent than in Level 2. The most salient characteristic of Level 3 is that a more or less complete version of the story is produced, although the sentences, while more coherent than in Level 2, may be awkward, and syntactic errors tend to repeat themselves. Thus, while the student may be able to produce sufficient vocabulary and facts necessary to retell the story, s/he has difficulty in combining the words with the same facility as that of the proficient speaker. It is also not uncommon to find some language mixing at Level 3. It should be noted that one of the more difficult discriminations to make in scoring the Oral Production is between Level 3 and 4 (i.e., limited vs. proficient). It is particularly at this level that the ear of a proficient native speaker is essential.
4	FLUENT (PROFICIENT) SPEAKER	At Level 4, the student produces a complete version of the story in coherent sentences with native-like fluency. While there may be occasional errors in either syntax or vocabulary, these are errors which would not be uncommon among native speakers. The main difference between Level 4 and 5 is that the former is often a more limited version in terms of vocabulary and syntactical complexity.
5		At Level 5, the student produces complete sentences which are coherent, syntactically correct for his/her developmental age, and overall is an articulate, proficient native speaker. Note: The determination of LAS® Levels 4 and 5 (proficient speakers) are based on the criteria of Standard English because of the instructional demands of most classrooms.

(Duncan & De Avila, 1981, p. 3)